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SPEAKERS NOTES ON

CHEMICAL AND BIOLOGICAL WARFARE

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These speakers notes were drawn up by the Bernal Library for the use of non-specialists needing factual notes on chemical and biological warfare. They are based on general newspaper reports, articles in magazines and Parliamentary documents, as indicated in the text. Further copies of the notes, together with a selected bibliography, are available from the library for 5s.

The proceedings of the Bernal Peace Library conference on Chemical and Biological Warfare, 22 and 23 February, 1968, have been published in CBW: Chemical and Biological Warfare, ed. Dr. Steven Rose, Harrap, London, 24 October 1968, at 30s. This is an invaluable handbook for both the scientist and non-scientist who wishes to be informed on the subject.

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Chemical and Biological Warfare

SPEAKERS NOTES

"A lengthy exposure to these agents is exceedingly unpleasant and painful. Soldiers have been driven mad by the pain. Some have tried to kill themselves to avoid it." (J. Perry Robonson speaking of the new tear gases at the Bernal Library Conference, 22 Feb. 1968)

"The distinction between defensive and offensive warfare is a load of rubbish. I believe chemical warfare is the most humane form of warfare. I would rather be ill for a month than fry." (Professor H. Rydon of Exeter University speaking at a teach-in on CBW, 10 June, 1968, reported in the Guardian, 11 June, 1968)

"To me, and I suspect to military planners, it seems illogical to set chemical and biological weapons apart from the other weapons on the grounds of beastliness alone. The question is, are there other grounds on which these weapons can be distinguished? I think there are. (Dr. John Humphrey, Deputy Director of the N.I.M.R., Mill Hill at the CBW Conference 22 Feb, 1968)

Outline of Notes

1. What are Chemical and Biological Weapons ?
2. What is the background to their use and their position in international law ?
3. How has the American involvement in CBW research and application developed ?
4. What are the CBW policies and activities of other countries ?
5. What is the British position on CBW ?
6. What are the issues raised by research on and use of CBW ?
7. What proposals have been made to change the British policies and control the spread of CBW ?

1. What are Chemical and Biological Weapons ?

All explosives, from gunpowder to napalm are the result of chemical reaction. However, chemical and biological weapons produce their effects directly as a result of their chemical properties rather than as a result of blast, heat, or other physical effects of a chemical reaction. They aim to destroy or injure living organisms. These weapons can be divided into:

(A) Chemical weapons

(B) Defoliants.

(C) Biological weapons.

(A) Chemical Weapons

Chemicals are spread as a gas, an atomized liquid or a finely powdered solid. They can also be sprayed from low flying aircraft or propagated by an aerosol mist (a suspension of very fine particles). The U.S. forces in Vietnam use a kind of giant fan called a 'Mighty Mite' which blows high concentrations of CS powder into tunnel systems, caves and houses. Extensive work on delivery systems has been done in the US including design of warheads suitable for the Sergeant Missile and it is believed that Russia has similar warheads for its Scud missile.

Types of gases produced: These are described as harassing agents, such as tear gases, choking gases which affect the lungs such as chlorine and phosgene, the nettle gases which are primarily skin irritants, blood gases which are absorbed through the lungs into the blood stream such as hydrogen cyanide, the vesicants such as the arsenicals and mustards which burn and blister both the skin and lungs and are extremely toxic, the nerve gases, known as G and V-agents that are quick kill agents of tremendous potency, and the incapacitating agents such as the American BZ, designed to slow down mental and physical functions.

The Harrassing agent CS is the principal one used at the present time by the Americans in Vietnam and the one around which a great deal of controversy has developed, partly because it was developed in this country and partly because of the well-documented deaths attributed to it.

The nerve gases, first developed by Germany, such as sarin and tabun, work through forcing the body to poison itself with a by-product of the functioning of the nervous system. A refinement on the German discoveries the V-agents, are reputedly a British discovery. In 1960 the Ministry of Defence confirmed that it has supplied details of their manufacturing processes to the US. One hundreth of a gram of this V-agent gas placed on the skin is believed to be fatal. This is an almost invisible amount and makes it possible for whole cities to be affected by one attack

Advantages of Chemical weapons to the Military -

They are relatively cheap and easy to produce.

They cover a wide range of effects and persistency.

Many different types of delivery systems - overt and covert are possible.

Many agents are colourless and odourless and hence extremely difficult to detect. Effective detection and treatment are delayed and perhaps impossible.

The agents leave installations, factories, etc, intact.

They are pervasive and can reach hiding places inaccessible to other types of weapons, therefore can injure or incapacitate more personnel.

Military disadvantages of Chemical weapons.

Disadvantages include their dependence on meteorological conditions such as temperature, wind or smog.

Variations in effectiveness when released in open or enclosed spaces.

Difficulty in tactical use because of persistence or danger to ones own army.

Impossibility of selective use against an individual target.

Defoliants and Herbicides

The spraying of common weedkillers from aeroplanes to expose enemy positions by destroying foliage, to cut off enemy food supplies by killing crops and to move populations as 'humanely' as possible.

The disadvantages of these chemicals lie in the uncertain ecological effects of such large scale poisoning of the earth, and immediately, the fact that their targets are inevitably the very young, the aged and the infirm. The enemy soldiers will always have first call on whatever food is available.

Biological Weapons

U.S. Army manuals list four kinds of biological warfare agents:

1. Micro-organisms such as bacteria, viruses and fungi.

2. Toxins - chemical poisons derived from living organisms.

3. Vectors - carriers of disease such as insects, birds and animals.

5. Pests of domestic animals and plants.

Within the micro-organisms researchers have investigated plague, Tularemia, anthrax, cholera, Q fever and Psittacosis among others.

Toxins are tiny amounts of a highly poisonous substance excreted by otherwise harmless bacteria. Being pure poison they are not contagious. The Botulinus toxin is among the most deadly poisonous, 1000 times more so than the nerve gases.

In 1949, Dr. Brock Chisholm, the wartime director of Canadian CBW research revealed that this weapon could wipe out all human life in a given area within six hours and yet itself be completely evaporated within 12 hours, leaving the area completely habitable. (CBW p. 13)

There is evidence of work in the U.S. and elsewhere on dried bacteria, which would be dispersed in the air, but would revive in the moisture of the human body. The head of the U.S. Army Chemical corps testified to Congress in 1960 that 100,000 lbs. of such an agent could wipe out one third of the U.S. population, i.e. approximately 60 million people.

Military advantages of Biological Weapons

The area of effective coverage in the initial delivery is greater than with chemical weapons. Tests have shown that coverage of thousands of square miles is quite feasible. This makes them suitable for attacking large populations.

Like chemical weapons, they strike directly at a population or its food and do not destroy property.

They can be self-propagating if contagious.

Detecting or identifying them is even more difficult than in the case of chemical weapons.

Some BW agents do not necessarily kill, they merely incapacitate.

The small amounts of agents necessary for use give them an enormous edge over other weapons in preparation, storage and dissemination. They can be produced rapidly keeping the cost of production relatively low.

They are adapted to covert use so would not necessarily invite retaliation.

Military disadvantages of Biological Weapons

So far, fortunately, there have been too many unknown factors associated with biological weapons to make them a useful tool even to the military mind. It is not possible to ensure accurate doses, or even spread. The dangers of infection spreading to ones own forces or country or being transmitted to the animal or insect population and then reappearing are too great.

Biological weapons used on a massive and discernible scale would invite retaliation and used on a small scale are too uncertain so far.

2. THE BACKGROUND TO THE DEVELOPMENT OF CBW AND THE LEGAL POSITION

1907 Hague Convention forbade 'use of poison or poisonous materials of a nature to produce superfluous injury.'

The use of chemical warfare began in a small way in 1st World War with a German chlorine attack in 1915, although there were allegations that the French had previously used tear gas. From 1915 on phosgene, chlorine and mustard gas were used increasingly by both sides and at the end of the war even more lethal gases such as Lewisite, were ready for use.

After the war the US took the lead in measures to prohibit the use of chemical warfare by proposing and ratifying the Treaty of Washington (1922) whereby the use in war of asphyxiating, poisonous or other gases would be outlawed. Unfortunately France objected to the inclusion of clauses completely unrelated to Chemical Warfare with the result that the whole treaty was rejected.

The Second Attempt - the Geneva Protocol 1925 added additional prohibition against 'bacteriological warfare'. For various reasons, including growing sense of isolationism and extensive lobbying by the American Chemical Society and American Legion the protocol, although signed by the US never passed the Senate. Britain together with 43 other states ratified the protocol and since the war another 14 states, including India, Pakistan, Cuba and a number of African States have done so. China's accession of 1929 has been recognised by the People's Republic of China. The UK, France the USSR and some others are parties subject to a condition of reciprocity.

The Geneva Protocol was probably a factor in preventing the use of CBW during the Second World War, although the Italians had used gas against the Abyssinians in 1935-36 and it was possibly used on a small scale by the Japanese in China 1937-42.

Roosevelt in 1943 declared for a 'no first use' policy, and in 1945 the Americans, together with France, Britain and Russia drafted the Nuremburg Charter defining war crimes and responsibilities. There were no articles specifically concerned with CBW but it could be argued that such warfare is forbidden under clauses 6 and 7.

In 1960 Eisenhower in a personal statement re-emphasised the US 'no first use' policy and in 1966 the US endorsed a Resolution of the UN General Assembly.

framed by Hungary calling for the strict observance by all States of the Geneva Protocol.

The formal US position at present is that they support the protocol although they have still not ratified it, but that exceptions exist to the overall prohibition, i.e.

1. Plants and crops are not covered by the protocol, and therefore defoliation and crop destruction are admissible.

2. The US is not officially at war with Vietnam and the protocol only forbids the use 'in war'.

3. The gases used in Vietnam are riot control gases and do not come under the prohibition against "asphyxiating or poisonous or analagous gases."

The official British position on the US use of gas in Vietnam echoes this point of view. Stewart said on 20th May, 1968, in answer to a question in Parliament, "I am not aware of the use of any lethal gas."

The American position seems to have been inconsistent even before they used gases in Vietnam, perhaps as a result of differences between the State and Defence Departments. The Army Field Manual FM27 - 10 "The Law of Land Warfare" (July 1956) states quite explicitly -

> "The United States is not party to any treaty now in force that prohibits or restricts the use in warfare of toxic or non toxic gases, of smoke or incendiary materials or of bacteriological warfare."

3. THE AMERICAN INVOLVEMENT IN CBW RESEARCH AND APPLICATION

By the 1950s the US Army Chemical Corps had become demoralised, low in prestige and in danger of abolition. Budget only $ 35 million per year. By 1959 it had decided to appeal directly to public opinion through a campaign known as 'Operation Blue Skies' - the bright new concept of 'war without death' to break through the nuclear stalemate - no bloodshed, no destruction, just incapacitate and take over. It was naive but it was effective. Support came from government and private enterprise.

In 1961 total R & D budget, now for all three services, had reached 57m dollars. In 1964 it was 158m dollars. Later figures remain classified but Dr. Steven Rose gives the figures of 300m dollars per year for the present expenditure.

By now CBW is firmly entrenched in big business, the government and the universities. Up to 65% of total R and D budget has on occasions gone to commercial firms. (Newcastle p. 23)* and at least 50 universities are involved in CBW research. The Army chemical corps are also undertaking their own research.

* J. Cookson and J. Nottingham, A New Perspective on War, The Union Society, the University, Newcastle-upon-Tyne,1, 1968, price 7/6 - contains a useful collection of Press references.

Some Army centres -

Edgwood Arsenal - main centre for Chemical weapons research.

Fort Detrick (Maryland) - centre for Biological Warfare research. 1,500 acres, 700 scientific and medical personnel, military establishment valued at 75m dollars. Has focussed on Anthrax, dysentry, Brucellosis, Glanders, Plague and Tularemia, trying to breed into them resistance to anti-biotics to make them more virulent. It has also investigated plant diseases to find an effective weapon against rice crops. (Science 133 Jan. 1967) Cooperates with British scientists from Porton.

Dugway Proving Ground (Utah) covers about 1,800 square miles. Testing of non-lethal agents on human volunteers. In March, 1968 over 6,000 sheep 25 miles from Dugway were killed by eating snow which had apparently been contaminated by nerve gas which had drifted from the Dugway proving grounds after shells had been tested there.

Rocky Mountain Arsenal and Pine Bluff Arsenal, centres for mass production.

Some Commercial Centres -

Food Machinery Corporation, Newport, Indiana Major plant for production of nerve gas, Sarin, - employs staff of 300 and working 24 hours a day since 1960.

Travelers Research Corporation (Hartford, Conn) working on a system for the development of plague and tularemia as weapons.

This acceleration of research made possible not merely by public relations and financial incentives to Chemical Companies but by fitting in with the strategy of the Administration looking for -

1. increased freedom of action in conditions of nuclear stalemate.

2. practical problems of waging a limited war against a small, under-developed country and the need to find an effective anti-guerilla weapon.

The last ten years in the US have been characterised by accelerating tolerance in the use of gas but also/increasing agitation among the students, members of the scientific community, journalists and general public against such research and weapons. This resulted in the paradoxial situation that until the CBW Conference and related campaign in this country actually much more gradually leaked out about CBW in the States than here.

CHEMICAL AND BIOLOGICAL WEAPONS IN USE IN VIETNAM

1. Defoliants -

First employed by the South Vietnamese Government in late 1961.

Goldwater's arguments in the 1964 election campaign for the use of defoliants were rejected with horror by Johnson, although the USA had already begun use on a limited scale. But after Johnson's victory defoliation campaign stepped up.

Report commissioned by Pentagon reported that in 1967 843, 606 acres of jungle had been sprayed, and 121,000 acres of crops, at a cost of 39m dollars. It was planning to spend 45m dollars in 1968 but by June of this year the US magazine Science, quoted in the Guardian, 25 June, reported that the Pentagon estimate had been raised to 70.8m dollars for the 12 months from July 1st. Dr. Minarik of Fort Detrict gave a much higher figure of 'almost 100m dollars' in an address in January, 1968, in which he also admitted to the use of an arsenical spray, cacodylic acid which is much more poisonous than the ordinary herbicides.

Aside from the immediate consequences - the starvation of civilians and its ineffectiveness in keeping food from soldiers, - American scientists are concerned over the long term effects.

> "We have engaged in massive environmental intrusion without being aware of the biological consequences"
>
> (Dr. Barry Commoner, speaking to the American Association for the Advancement of Science)

Dr. Galston at recent CBW conference pointed out that defoliation increased the average temperatures and winds, decreased the rainfall and helped the conversion of soil to rock. He was concerned about the persistance of chemicals in the soil. Crop destruction on a small scale is ineffective, on a sufficiently large scale is disasterous for the whole community, particularly in a country which depends on rice to live.

2. Harrassing Gases

These are another example of gradual escalation in use.

They were first supplied in 1962, although not used in combat until December, 1964. The Secretary of Defence identified the gases used as DM, CS and CN in March 1965. They were used in the open air, not as agents to 'flush out' tunnels. Dean Rusk insisted

> "there has been no policy decision to engage in gas warfare in Vietnam ... We are talking about a gas which has been commonly adopted by the police forces of the world as riot control agents.. to avoid death or injury to innocent people." (From New York Times, 25 March 1965)

Overwhelming adverse reaction in US resulted in temporary suspension of the use of gas or at least of publicity on its use. In September, 1965 a Marine Corps Officer sent home for using 48 cannisters of CN gas in a military offensive, although he was later cleared of the charge. It is possible that the incident was engineered to test public reaction which was negligable.

By the end of 1965 the use of gas was extended and there are reports of new gases not included in the original descriptions. From this time on there are increasing reports of the use of gas to clear out confined spaces such as bunkers and tunnels and shelters.

Among the gases stockpiled in Vietnam are CNS - a nausea producing gas with longer term effects than those caused by CS, and BZ a lethargic gas which temporarily affects the mind. It is impossible to know exactly which gases have actually been used in Vietnam as the security precautions have been so strict and the reports from non-American sources conflicting. However, it is possible that agents have been used in various combinations on an experimental basis to test their effects, that gas, as well as being used tactically to clear tunnel systems, etc, is also being given the kind of field trials under combat conditions which would not be possible in a laboratory or testing ground.

The American position has always been that the gases used in Vietnam are non-lethal. Clearly this description is meaningless applied to gases. Like anaesthetics, they are non lethal only when used correctly under controlled conditions, not when forced under pressure into tunnels by the Mighty Mite or used at close quarters.

> Dr. Steven Rose told a group of MPs in July that CS had caused more than 350 'very well documented deaths' (Guardian, 1 July 1968)
>
> Some of the particular incidents of deaths:
>
> The New York Times, 25 March 1965 reported that non-toxic gas in tunnels killed one Australian Soldier, Corporal Robert Bowtell and sent six others to hospital although they were wearing gas masks at the time.
>
> A Canadian doctor, Dr. Vennemma, serving in a civilian hospital in Vietnam, reported in a letter to the American Association for Advancement of Science, that of civilian gas casualties treated at his hospital, the death rate among children was 90% and amongst adults 10%. He could not be sure that the gas in question was CS, but it was uncontestably lethal.

Biological Warfare

There is no direct evidence that the Americans are using biological weapons in Vietnam, although it is clear that extensive research is done in the States.

Dr. Robert Ellis, an executive of the New England Chemical firm of Travelers Research, has confirmed that his company holds a contract from the Defence Department for the development of a system of airborne delivery of plague suitable for use in Vietnam. Part of the project is to develop a strain of plague particularly resistant to anti-biotics and also to study the attitudes toward the possible use of biological warfare among Government leaders. (Viet Report June/July 1966)

In the investigation by the PSR (Physicians for Social Responsibility) which uncovered this contract they were given conflicting information by Dr. Ellis, the Defence Department, and the State Department and a White House Aide who told them that the State Department had reversed its opposition to the use of Bacteriological Warfare in a memo sent to the President in June, 1965. No official announcement of this has been made.

The fact is that the WHO figures for plague in South Vietnam show astonishing recent increases. The incidence of plague decreased until in 1954 there were no cases. From then on they gradually rose again.

1964 - 227 cases.

1965 - 4,500 cases

1966 - 2,649 cases in the first six months.

WHO has not been able to provide later statistics, which are controlled by censorship. Figures released by the American Embassy in Saigon in April, 1968 give:

1967 - 2,438 suspected cases for 1st three months of 1967

1968 - 1,647 suspected cases 1st three months.

These figures were given as from the South Vietnamese Ministry of Health and were probably released to show the decrease from 1967 to '68. They are impossible to verify and probably inaccurate but they do prove that the spread of plague is alarming. Of course the classic conditions exist for spread of epidemics in Vietnam and although the figures are very low in the surrounding countries it is possible that the disease comes by ship from Indonesia and then spreads naturally.

American soldiers are immunized against plague before coming and receive boosters every four months. One American soldier has been sent back to the US after contracting plague.

Seen in the context of other American activities in Vietnam and their heavy R and D investment in Bacteriological warfare the possibility that they are already using Vietnam as a testing ground for BW cannot be completely excluded although the liklihood is remote because of the difficulties in collecting useful statistics and the dangers of such a step.

4. WHAT ARE THE CBW POLICIES AND ACTIVITIES OF OTHER COUNTRIES ?

It must be assumed that research on CBW goes on in most major countries of the world. More is known about work in the States because (a) It is the one country which is actually using chemical warfare, and on a massive scale (b) the inconsistent security policies on CBW over the past years have allowed the spread of information. (c) the growth of protest against the Vietnam war among students and scientist has brought information to light.

Similar research is undertaken in Canada, in Southern Alberta and in Russia near the Caspian Sea. The station set up in Manchuria by the Japanese in the 1930s is probably being used by the Chinese Government. The US has reported the discovery of caches of Chinese-made gas grenades in Vietnam. It seems clear that mustard gas, allegedly supplied by Egypt, has been used in the Yeman and there were unconfirmed accusations of the use of V agents. The existence of French CS came to light when it was used against the students last May with prolonged and serious effects.

5. WHAT IS THE BRITISH POSITION ON CBW ?

Legally the British position is quite straightforward. Britain has signed the Geneva Protocol but reserves the right of retaliation if CBW used should be used against her. All the research in this country is devoted to identifying possible chemical or biological weapons and developing defenses against them.

In fact, the position is not so simple, as has become increasingly apparent through the public inquiry and pressure which has developed since the J.D. Bernal Peace Library's Conference, in February 1968.

Great Britain is linked with the US, Canada, and Australia for the exchange of scientific information through the Technical Cooperation Programme of 1958 and the Basic Standardisation Agreement of 1964, although the exact terms of these agreements have not been made public. They are known generally as the Quadripartite Agreement. This has meant that the US could take over and develop the British rediscovery of CS made shortly after the war.

"We had the good fortune in the immediate post-war years here to rediscover because the chemical had been made before, an agent called CS, which in fact has been used over the last 15 years world wide, and is still being used. It makes you cry, it hurts your nose, it tightens the chest, there is a desire to cough. It lasts as long as you are in the cloud which, of course, is probably invisible, but as soon as you do get out - within five or ten minutes - the effects clear up and although when you are in the cloud you think you're going to die, you do recover completely." (Eric Haddon of CDEE, Porton, in television programme, 'A Plague on your Children'

In 1960 the British Ministry of Defence confirmed that it had supplied details of a nerve gas manufacturing process to the United States.

"Take the nerve agents. Some of the more recent ones were the result of work in this country by an industrial concern looking for better insecticides. They told us about this - they were looking, of course, for really low human toxicity, but found rather to their disgust that some of the agents they were making had rather high toxicity. We, in fact investigated, told the Americans about them as part of our liason, and the Americans, you now know, are making these in ton quantities for offensive purposes". (Eric Haddon of CDEE, Porton, in television programme, 'A Plague on your Children'

30 June, 1968 the Sunday Observer reported that the US Journal of General Microbiology has published an article describing the

cooperation between British Scientists at Porton and Americans at Fort Detrick on the plague bacillus. Dr. Bernard Dixon, deputy Editor of 'World Medicine' has described this combined research as possibly resulting in the production of one of the most dangerous organisms the world has ever known.

THE PORTON ESTABLISHMENTS

> Little was known about these two establishments by the general public until the BBC television programme of June 6th, 1968, 'A plague on your children' and the report of the Select Committee on Science and Technology which was published on July 8th, 1968. This report appeared partly censored. Nature said:
>
> "Like a Victorian novel, the evidence has a tendency to dissolve at moments of stress into a series of asterisks, hinting at horrors too awful to spell out in full."

1. The Chemical Defence Experimental Establishment (CDEE) was set up in 1916 under the Ministry of War to 'investigate and assess the threat of Chemical warfare and advise the three fighting services on means of protection against it.' It costs £1,600,000 a year to run and employs 70 scientists and engineers and 120 experimental officers. It has 7,000 acres of range for trials but of course has access to the larger ranges in the U.S. and Canada.

Porton maintains an outstation in Nancekuke, Cornwall, where the feasibility of producing chemical agents in military quantities is investigated. At Nancekuke CS is manufactured and some of this is sent to the Schurmuley factory in Guildford where cannisters are filled and supplied to about half of the police forces in this country. About 6 tons a year are exported to foreign police forces, bringing in about £25,000. The CS used by the U.S. in Vietnam is not manufactured in this country but the Defence Ministry replies in Parliament on the exact position of the licensing arrangements with the US have not been completely clear.

The nerve gas VX is also produced at Nancekuke, but in test quantities only.

2. The Microbiological Research Establishment (MRE) was started during World War II. It has 48 scientific and 76 experimental officers and costs £500,000 per year. About 80% of the work that goes on is published in the open literature.

Although the Directors emphasise that the primary purpose of both establishments is military defence they have both made civilian contributions such as the development of better air filters, protective clothing and various vaccines.

A member of the American Standarization Office in the U.K. as well as 13 forces officers are stationed at Porton to insure standardisation of equipment with the U.S. and with our armed forces. There are also agreements with NATO and with NATO countries bilaterially on standardisation.

The CDEE at Porton has 27 research contracts with Universities while MRE has five. None of these are specifically classified although the universities undertaking the work agree to consult the Department before publication and permission could be refused if the national interest, including security, necessitated it. (Parl Answer, Under Sec of State for Defence, Feb. 26 1968)

GROWING PUBLIC CONCERN OVER CBW IN THIS COUNTRY

Since January there has been growing concern over CBW generally, and specifically over British involvement in American actions in Vietnam.

1. Members of Parliament have been asking questions to try to throw light on -

   - Classified defence contracts in the universities.
   - The exact nature of the Quadripartite agreement for information.
   - The work of Porton and Nancekuke
   - The relationship between British and American C.S.

2. Many British scientists, including half of all British Nobel prize winners have been conducting a campaign for the publication of all work carried out at the M.R.E., Porton and for the transfer of its work from the Ministry of Defence to a civilian authority, preferably the Ministry of Health.

   'We have seen how British chemical research has been made available to the Americans who are developing offensive weapons. The position now is that British biological research could be used by them to develop weapons for germ warfare." (Maurice Wilkins - Guardian, 27 June, 1968)

   Wilson replied that some measure of secrecy was essential so as not to reveal the country's preparedness and some of the agents on which we were working.

3. The Anti-CBW group formed by Mrs. Compton in Devon in co-operation with others like F.O.R. and C.N.D. to hold teach-ins and write to papers.

4. Student groups, particularly at the University of Essex, have held demonstrations.

The government has responded to these pressures with the announcement of open days at the MRE in Porton and proposals brought to the 18 Nation Disarmament Conference

Disarmament Conference in Geneva on August 6th by Fred Mulley, the Minister of State for Disarmament:-

The U.K. Working Paper on Microbiological Warfare

Chemical and Biological warfare should be considered separately.

Chemical weapons research already represents considerable investment in many countries; gases have already been used in war; the question of distinctions between lethal and non-lethal gases are too complicated.

Therefore the question of chemical warfare should be referred to the UN Secretary-General for a report on their nature and use.

The proposals are for a new Convention for the Prohibition of Microbiological methods of warfare, to supplement but not supersede the 1925 Geneva protocol. Those states adhering to it would agree not to use these methods under any circumstances or to carry out research on microbiological weapons.

The difficulties of verification and control are recognized, but it is suggested that a competant body of experts might be established under the auspices of the UN to investigate allegations of use of Microbiological weapons. Provision should be made for the destruction of all bacteriological agents in stock and ancillary equipment and for the de-classification of research work in related fields.

The Russian reaction was that it was more important to consider ways of putting teeth into the Geneva Protocol and to get all countries, especially the U.S. and Japan, to ratify it. Mr. Roschin referred to the 1966 UN Assembly Appeal for Adherance which had already been endorsed by the U.S.

The American reaction was non-committal. 'The United States continued to support the worthy objectives of the Geneva Protocol. The new convention proposed by Britain would supplement but not supersede it.'

It is hard not to feel that this is primarily an attempt by the British government to disarm domestic critics of their CBW policy without having to oppose or even discuss American chemical warfare practise. However, it would be unfortunate if the question were allowed to drop. A UN report on the use of Chemical weapons could be a beginning. The Pugwash experiments with the feasibility of investigating biological weapons research and discovering techniques for the rapid detection of micro-biological agents in the air might offer more protection than an international body set up to investigate allegations of the use of biological weapons after the event.

6. What are the issues raised by research and use of CBW ?

Arguments in favour of continuing the present British policy of secret research and the right of retaliation:

1. It is essential to the proper defense of the country.

   There is the example of the deterrent effect in World War 11 of leaked secret research.

   There is a danger that other countries will learn our secrets and use them for offensive purposes against us.

   We have access to the large body of American research through the Quadripartite Agreement for the expenditure of a small amount of money on our own research. This would be stopped if secrecy were ended.

   Maintaining some secret work would enable this country to switch to more intensive military work if it should become necessary.

   The work in this country is not provocative - it is on a small enough scale to avoid stockpiling. We have done no work on delivery systems.

   Unlike a nuclear attack a chemical and biological attack could be resisted as there is a reasonable prospect of antidotes. It is the business of Porton to discover, test and deploy them.

   Knowledge by a potential enemy that we were protected against a specific gas or biological weapon might lead to a change in their choice of agent.

2. You cannot ignore any weapon which in war has the possibility of bringing victory and lessening casualties. Civilised war is not possible. Any distinction between, say, napalm and gas is false morality. If this country ever gets in a war it must fight to win with all weapons open to it.

3. We must try on an international level to gain controls over CBW but not let go our own research until they are secured.

Criticisms of the present U.K. position have emerged in the course of these notes and are summarised as follows:

1. Any proposals or practise which runs the danger of watering down the one ban on arms which stood through the 2nd World War should be avoided in the interests of further disarmament control.

2. In peacetime secrecy is more provocative than protective, and even in the 2nd World War it was not the secrecy which protected us from gas attack but the intentional leakage of knowledge of our preparedness.

Professor E.H.S. Burhop of London University was reported as saying that there might be a calculated risk in publishing results because a breakthrough in research in the discovery of an micro-organism or noxious agent might become available to another country. But this event appeared unlikely because all the countries engaged in this activity were all well advanced at approximately the same level.

The revelation of defensive measures might not necessarily diminish their value. Effective defense could be increased by a demonstration of awareness.

3. The implications of secret research and of defense contracts in the universities, particularly in peacetime, are disturbing and militate against the characteristics of truly open and free research which must characterise the world of learning.

4. The moral revulsion against CBW should not be underestimated but has more to do with the British position under the Quadripartite Agreement than against the weapons as such. It is expressed in this kind of opinion:

> "How dare the politicians pin hopes on international controls and seek virtue in the fact that Britain has not yet used this weapon when it is they who have already passed it over in secret to allies who can and may ?
>
> There can only be anger that the nation has been placed in such a predicament."
>
> (From an insert in a national church magazine)

> "What still worries many of us, however, is whether the results of their investigations... is communicated to establishments beyond our shores. Are not these establishments, unbeholden to any Geneva Convention in fact engaged in furthering and perfecting the very instruments of chemical attack to which Porton seeks the antidotes?"
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> (Lord MacLeod in a letter to the Times, June 28, 1968)

British cooperation with the USA, taken together with our secret research arouses the suspicion of other nations and does not make for agreement on control.

5. Is the end result of this kind of research designed to increase or decrease the possibility of Chemical and Biological Warfare? The Federation of American Scientists issued a statement in May, 1968, which is equally applicable to this country:

> "It is foolish for a rich nation with the strongest deterrent

on earth to encourage other nations to develop cheap weapons that might neutralise our power or destroy our people... Neither our acts nor our statements should increase the plausibility of chemical and biological warfare."

We have more to lose in continuing our secret research on chemical and biological warfare than we have to gain.

6. Does the work done at Porton really guarantee the defence of the country against CBW ?

The unique susceptibility of the US to such attack has been emphasised - we are a small island with large concentrations of population, exposed to fairly constant west winds.

Despite the assurances of the Government spokesmen and the heads of Porton establishments, the work done there does not provide for the defence of civilians.

An attack on Britain using nerve gases similar to those developed at Porton in the 1950's would find us defenceless. We have no protective clothing, air filtration devices, atropine syringes nor immunisation techniques for civilian use.

The only defence against CBW attack is an adequately informed and openly protected population. Does this country want to spend the money which would be necessary to ensure such protection ?

7. The arguments against the use of gases or biological weapons on any level or in any circumstances is not just false morality.

CBW, like nuclear arms, are total weapons, potentially destructive of whole populations.

An attack by a single bomber with nerve gas could at present equal the mortality of the Hiroshima and Nagasaki atomic bombs.

"The field testing of live biological weapons and especially the outbreak of actual biological warfare would constitute a menace to the entire human species." (M. Mesdson at the CBW conference, February 1968)

SOME OF THE PROPOSALS FOR CHANGING BRITISH POLICY AND FOR CONTROL OF CBW

1. Re-affirm and strengthen the Geneva Protocol of 1925.

   End the false distinction between 'lethal' and 'non-lethal'. A first step might be the preparation of a report on gases and the implications of their use by the Secretary-General of the UN, as suggested by Fred Mulley in Geneva.

   Work towards the kind of 'open research' agreement in Microbiology which has been developed by the Pugwash Conferences which would make it almost impossible for any nation to test a secret biological weapon.

2. End the information sharing agreement on CBW with the U.S., Canada and Australia.

3. Stop all export of chemical agents.

4. Place Porton under the Ministry of Health and open it to the public.

5. Inform the public of the facts about CBW as is done in Sweden so that conscious decisions can be made about possible defence and its cost.